Quinton Township School
First Grade
Science - Unit 3

Grade 1 Science Unit 5: Communicating With Light and Sound **Key: Careers Technology Interdisciplinary Studies**

Unit Summary - Marking Period 4 24 Days

In this unit of study, students develop an understanding of how plants and animals use their parts to help them survive, grow, and meet their needs. Students also need opportunities to develop possible solutions. As students develop possible solutions, one challenge will be to keep them from immediately implementing the first solution they think of and to instead think through the problem carefully before acting. Having students sketch their ideas or make a physical model is a good way to engage them in shaping their ideas to meet the requirements of the problem. The crosscutting concept of structure and function is called out as an organizing concept for the disciplinary core ideas. Students are expected to demonstrate grade-appropriate proficiency in constructing explanations, designing solutions, and in developing and using models. Students are expected to use these practices to demonstrate understanding of the core ideas.

Objectives Aligned with National Geographic Resources: Approximate Time Frame: 24 days

Day 1-3

- Explain how different animals use their body parts in different ways.
- Identify the different body parts of animals that help them survive and grow.
- Explain that animals use their body parts in different ways to see and hear.

Day 4-5

- Explain that animals use their body parts in different ways to grasp objects.
- Identify the different body parts of animals that help them survive and grow.
- Explain that animals use their body parts in different ways to protect themselves.
- Identify the different body parts of animals that help them survive.

Day 6-7

- Explain that animals use their body parts in different ways to grasp objects.
- Identify the different body parts of animals that help them survive and grow.
- Explain that animals use their body parts in different ways to protect themselves.
- Identify the different body parts of animals that help them survive.

Day 8-9

- Explain that animals use their body parts in different ways to move from place to place.
- Identify the different body parts of animals that help them survive and grow.
- Explain that animals use their body parts in different ways to seek and find food.
- Identify the different body parts of animals that help them survive and grow.

Day 10-11

- Explain that animals use their body parts in different ways to move from place to place.
- Identify the different body parts of animals that help them survive and grow.
- Explain that animals use their body parts in different ways to seek and find food.
- Explain that animals use their body parts in different ways to take in food, water, and air.
- Identify the different body parts of animals that help them survive and grow.

- Describe how animals capture and convey different kinds of information needed for growth and survival. ● Identify animals' responses to these inputs with behaviors that help them survive.

Days 12

- Describe how engineers design solutions to a human problem by mimicking how animals use their external parts to help them survive, grow, and meet their needs.

Days 13

- Use materials to design a solution to a human problem by mimicking how animals use their external parts to help them survive.

Day 14-15

- Explain that some young animals make noises to let their parents know they need something.
- Describe how some animal parents and their offspring engage in behaviors that help the offspring survive.
- Explain that many young animals need help to stay warm.
- Describe how some animals' parents and their offspring engage in behaviors that help the offspring to survive.

Day 16-17

- Explain that many young animals need to be carried to move from place to place.
- Describe how some animal parents and their offspring engage in behaviors that help the offspring to survive.
- Explain that many young adult animals protect their young.
- Describe how some animal parents and their offspring engage in behaviors that help the offspring to survive.

Day 18

- Identify that some animal parents and their offspring engage in behaviors that help the offspring to survive.
- Describe how some young animals learn how to survive from their parents.

Day 19

- Determine patterns in the behavior of parents and offspring that help offspring survive.

Day 20

- Observe that young animals are very much, but not exactly, like their parents.
- Recognize that individuals of the same type of animals are similar, but can also vary in many ways.
- Observe patterns that young animals are very much, but not exactly like their parents.
- Recognize patterns that individuals of the same kind of animal are similar but can also vary in many ways.

Day 21

- Plan and conduct an investigation in order to make and record observations to show that young animals are like, but not exactly like their parents.
- Use evidence from their observations to explain their results.

Day 22

- Connect concepts about the animals and how they survive with the career of a conservationist.

Day 23

- Chapter Review of Life Science

Day 24

- Life Science Assessment

Unit Sequence	
Part A: How can humans mimic how plants and animals use their external parts to help them survive and grow?	
Concepts	Formative Assessment

· Every human-made product is designed by applying some knowledge of the natural world and is built using materials derived from the natural world. · The shape and stability of structures of natural and designed objects are related to their function(s). · All organisms have external parts. Different animals use their body parts in different ways to see, hear, grasp objects, protect themselves, move from place to place, and seek, find, and take in food, water, and air. Plants also have different parts (roots, stems, leaves, flowers, fruits) that help them survive and grow. · Animals have body parts that capture and convey different kinds of information needed for growth and survival. Animals respond to these inputs with behaviors that help them survive. Plants also respond to some external inputs. · Designs can be conveyed through sketches, drawings, or physical models. These representations are useful in communicating ideas for a	*Students who understand the concepts are able to:* · Observe and record how to describe the shape and stability of structures of natural and designed objects are related to their functions. · Use materials to design a device that solves a specific problem or [design] a solution to a specific problem. · Use materials to design a solution to a human problem that mimics how plants and/or animals use their external parts to help them survive, grow, and meet their needs: Examples of human problems that can be solved by mimicking plant or animal solutions could include: ü Designing clothing or equipment to protect bicyclists by mimicking turtle shells, acorn shells, and animal scales. ü Stabilizing structures by mimicking animal tails and roots on plants. ü Keeping out intruders by mimicking thorns on branches and animal quills. ü Detecting intruders by mimicking eyes and ears. · Develop a simple model based on evidence to represent a proposed object or tool. · Develop a simple sketch, drawing, or physical model to illustrate how the shape of an object helps it function as needed to solve a given problem. ● Exit Tickets ● Journal Responses ● End of Unit Assessments

problem's solutions to other people.	

Common Core State Standards/Learning Targets:1-LS1-1, K-2-ETS1-2, W.1.1, W.1.7, W.1.8, SL.1.1, MP.5, 1-MD.A.1, 1.MD.A.2, 8.1, 8.2, 9.2.4.A.1, 9.2.4.A.3, 9.2.4.A.4

Modifications

(Note: Teachers identify the modifications that they will use in the unit. See NGSS Appendix D: All Standards, All Students/Case Studies for vignettes and explanations of the modifications.)

· Structure lessons around questions that are authentic, relate to students' interests, social/family background and knowledge of their community.

· Provide students with multiple choices for how they can represent their understandings (e.g. multisensory techniques-auditory/visual aids; pictures, illustrations, graphs, charts, data tables, multimedia, modeling).

· Provide opportunities for students to connect with people of similar backgrounds (e.g. conversations via digital tool such as SKYPE, experts from the community helping with a project, journal articles, and biographies).

· Provide multiple grouping opportunities for students to share their ideas and to encourage work among various backgrounds and cultures (e.g. multiple representation and multimodal experiences).

· Engage students with a variety of Science and Engineering practices to provide students with multiple entry points and multiple ways to demonstrate their understandings.

· Use project-based science learning to connect science with observable phenomena.

· Structure the learning around explaining or solving a social or community-based issue.

· Provide ELL students with multiple literacy strategies.

· Collaborate with after-school programs or clubs to extend learning opportunities.

· Restructure lesson using UDL principals (http://www.cast.org/our-work/about-udl.html#.VXmoXcfD_UA).

Science and Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts

Analyzing and Interpreting Data · Analyze and interpret data to make sense of phenomena using logical reasoning. (3-LS3-1) Constructing Explanations and Designing Solutions · Use materials to design a device that solves a specific problem or a solution to a specific problem. (1-LS1-1) Developing and Using Models · Develop a simple model based on evidence to represent a proposed object or tool. (K-2-ETS1-2)	LS1.A: Structure and Function · All organisms have external parts. Different animals use their body parts in different ways to see, hear, grasp objects, protect themselves, move from place to place, and seek, find, and take in food, water and air. Plants also have different parts (roots, stems, leaves, flowers, fruits) that help them survive and grow. (1-LS1-1) LS1.B: Growth and Development of Organisms · Adult plants and animals can have young. In many kinds of animals, parents and the offspring themselves engage in behaviors that help	Structure and Function · The shape and stability of structures of natural and designed objects are related to their function(s). (1-LS1-1) · The shape and stability of structures of natural and designed objects are related to their function(s). (K-2-ETS1-2) --- ***Connections to Engineering, Technology, and Applications of Science*** Influence of Science, Engineering and Technology on Society and the Natural World · Every human-made product is designed by applying some knowledge of the natural world and is built using materials derived from the natural world. (1-LS1-1)

	the offspring to survive. (1-LS1-2) LS1.D: Information Processing · Animals have body parts that capture and convey different kinds of information needed for growth and survival. Animals respond to these inputs with behaviors that help them survive. Plants also respond to some external inputs. (1-LS1-1) ETS1.B: Developing Possible Solutions · Designs can be conveyed through sketches, drawings, or physical models. These representations are useful in	

	communicating ideas for a problem's solutions to other people. (K-2-ETS1-2) Patterns · Patterns in the natural and human designed world can be observed, used to describe phenomena, and used as evidence. (1-LS1-2)	